Frankly Speaking

Imagineering

SEVERAL times recently, I have chanced to come across the synthetic word "Imagineering" in magazine articles. I think this word should be used frequently as a spur to more original thinking in the traffic engineering profession.

All the trends of the times indicate that sound engineering experience, blended with imagination *plus commonsense,* achieves best results. This has been proven over and over again in military experience.

Fortunately, our traffic engineers have not been backward in applying imagination when confronted with such extraordinary war problems as stoppage of production of civilian cars, gasoline rationing, spare parts shortages, overburdened railroads and public transit facilities, migration of vast numbers of war workers, decreased street and highway construction, lack of highway maintenance facilities, and difficulties in obtaining traffic control equipment—to mention but a few.

May we all continue to make liberal use of this important ingredient—imagination—as we carry on the profession defined on the back cover of this magazine as "Traffic Engineering is that phase of engineering which deals with the planning and geometric design of streets, highways, and abutting lands, and with traffic operation thereon, as their use is related to the safe, convenient, and economic transportation of persons and goods."

We are solving our war problems with signal success. Are we looking into the future with the same imagination?

Remember, one thing that made this country great was imagination. Let's continue to apply it in liberal quantities to every aspect of our work as professional traffic engineers.

Harold D. Hammond

President

VOLUME XIV MARCH, 1944 NUMBER 6

The Influence of Alinement on Operating Characteristics

by O. K. NORMANN

THE alinement of a highway determines to a large extent how effectively the highway will meet the demands of traffic. Not long ago, road design was limited almost entirely to the static aspect, the only dynamic consideration being the impact of live loads on highway structures. Today, the engineer can and should consider the volume and type of traffic, driving characteristics of vehicle operators, and the dynamic effect of curvature, superelevation, and other design details on operating features of the completed facility.

Integrated analyses of various driver behavior and vehicle performance investigations, conducted by the Public Roads Administration in cooperation with a number of State highway departments prior to the war, make it possible to foretell accurately the operating speed limitations on two-lane highways where differing sight distance standards are employed. This paper outlines these analyses and presents a summary of those findings which will be of value in the refinement of geometric highway design.

Current Speeds

Of first importance in any determination of alinement for a proposed highway is a knowledge of the speeds at which vehicles would travel in the absence of traffic or sight distance restrictions. Prewar observations of operating speeds at numerous rural locations throughout the country reveal that the typical main highway carries vehicles which, under the conditions mentioned, operate at speeds ranging from approximately 20 to 60 miles per hour. Their average speed is about 43 miles per hour.

On other selected sections of high-speed tangent highway through flat terrain and with relatively few minor side roads and property entrances, speeds for vehicles not influenced by traffic or sight restrictions were found to range from 25 to 80 miles per hour. Evidence of the fact that highway speeds are not limited so much by the physical aspect of the highway as they are by the limitations of the vehicle or the whims of its driver appears in the findings at these "near ideal" locations. Forty percent of the "free vehicles" were operated at speeds above 50 miles per hour and 17 percent chose to travel at 40 miles per hour or slower.

Future Speeds

It is impossible to predict the speeds on our future highways with any degree of assurance. Developments in the automotive field will permit postwar manufacture of vehicles with capacity for considerably higher speed than those heretofore available. But the growing use of the airplane for long distance travel, economic considerations in future highway design and especially the extent to which drivers can or will take advantage of the higher speed that may be built into postwar cars, suggest that future increases in motor vehicle speeds will probably come as the result of fewer low speeds rather than from any substantial increase in maximum speeds.

An estimate of this future tendency has been made and indicates that on a two-lane highway constructed to the high standards of modern design and with limited access, the frequency distribution of vehicles not subject to traffic or sight distance restrictions will show approximately 85 percent of the vehicles traveling faster than 50 miles per hour and none slower than 40 miles per hour.

The frequency distributions of "free vehicle" speeds have been used as the basis for determining the influence of alinement on the operating characteristics of rural highways under the following conditions:

1. Highways where access is not limited and speeds are eventually influenced by numerous uncontrolled entrances and exits along the highway.
2. Highways with limited access or located through areas where there are apt to be relatively few entrances or exits along the highway.
3. A possible future condition that may be brought about by an improvement in operating conditions and a gradual reduction in the relative number of low-speed drivers on roads with limited access and other design features favoring safe travel at high speeds.

Effect of Volume on Speed

A driver attempting to travel 70 miles per hour on a highway where there are no sight restrictions or interferences from other traffic can, obviously, maintain that speed 100 percent of the time. However, with other traffic on the road, he soon overtakes a slower vehicle and must reduce his speed until an opportunity to pass occurs. As the volume of traffic on the highwaly increases the 70-mile-per-hour driver overtakes more slower vehicles and is delayed more frequently even though no sight restrictions exist. As a result, the precent of time that he can travel at 70 miles per hour decreases and his overall average speed drops correspondingly. It was found, for example, that with a total volume of 200 vehicles per hour on a high-speed two-lane highway where no sight distance restrictions exist, a driver trying to maintain 70 miles per hour could hold this speed only 50 percent of the time, and at 550 vehicles per hour the average driver would not be able to get up to a speed of 70 miles per hour at any time. In the former case, his average overall speed would be about 60 miles per hour because of delays in waiting for traffic obstacles to clear before passing and in the latter case his overall speed would average slightly over 50 miles per hour. *At a total volume of 1,400 vehicles per hour the average overall speeds of drivers trying to maintain 70, 60, or 50 miles per hour were all the same.*

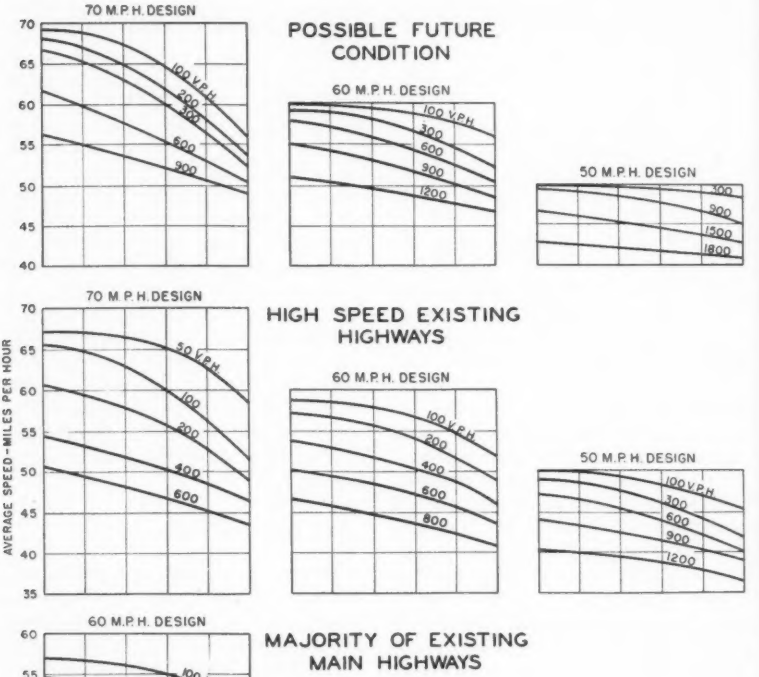
Speed Terms Defined

Before the influence of short sight distance on operating characteristics of two-lane highways can be determined, it is necessary to define certain terms and to set up basic standards of alinement.

"Design Speed" denotes the speed at which individual vehicles can travel when the traffic volume is not great enough to cause a reduction in speed.

"Operating Speed" on the other hand, denotes the average speed at which a driver can travel under existing traffic densities without exceeding the design speed. "Operating Speed," therefore, varies with the character of the traffic, the existing traffic volume, and the percentage of the highway on which passings can be made safely.

If a balanced, economical, and safe highway design is to be provided, the design speed cannot be selected without regard to the possible operating speed. It would, for example, be difficult to justify the expenditure of additional funds for a design that would



POSSIBLE AVERAGE SPEED AT DIFFERENT TRAFFIC VOLUMES FOR DRIVERS TRYING TO TRAVEL AT THE DESIGN SPEED WHEN THE SIGHT DISTANCES ON VARIOUS PORTIONS OF THE HIGHWAY ARE LESS THAN THE PASSING SIGHT DISTANCE

permit individual vehicles to travel faster on curves than the speed at which they would be likely to travel on tangent sections of the highway during the life of the improvements.

Explanation of Speed Curves

The series of curves presented show possible operating speeds on two-lane highways where there are sight distances less than that required for safe passing on various portions of the highway. Sight distance restrictions are expressed in terms of the total length of the highway and three design speeds for each of the three highway types described earlier are included. These results illustrate the significant difference between "Design Speed" and "Operating Speed" on two-lane highways. The former varies with maximum curvature, superelevation, width and smoothness of the surface and minimum sight distance. "Operating Speed" varies with all these and also with traffic density and the percentage of the total highway length on which faster drivers can pass the slower moving vehicles.

It will be seen, for example, that a driver trying to maintain his speed at 70 miles per hour on a high-speed existing highway designed for this speed will be able to average as high as 61 miles per hour when the traffic flow is 200 vehicles per hour and there are no sight distance restrictions. If sight distance is restricted to 60 percent of the highway the possible operating speed will average 56 miles per hour and with 100 percent restriction, the average drops to 48 miles per hour.

Conclusions

The selection of a proper design speed and the relation of this choice to the possible operating speed which will result are items of major concern to highway engineers planning for postwar highway facilities. Careful study of the data presented in these curves will, it is believed, provide substantial assistance to the engineer in his consideration of design speed and highway alinement.

The following are the most significant conclusions of this analysis:

1. Alinement that permits high-speed operation of individual vehicles on curved sections will not necessarily provide more satisfactory operating speeds at the higher traffic volumes than an alinement on which individual vehicles must travel curved sections at somewhat lower speeds.

2. Sight distances that will permit passing maneuvers to be performed safely are just as important a consideration in the selection of alinement for a modern two-lane highway as the standards for curvature, gradient, superelevation, or non-passing sight distance.

3. Two-lane highways, designed for speeds of 70 miles per hour will not provide for operating speeds above 60 miles per hour except at extremely low traffic densities.

A condensed version of a paper presented at the 23rd Annual Meeting of the Highway Research Board, November, 1943, by O. K. Normann, Senior Highway Engineer, Public Roads Administration, Washington, D. C.

Design Speed	SIGHT DISTANCE STANDARDS			Assumed Average Length of a Restricted Section	
	Minimum For Safe Stopping	Minimum For Safe Passing	At Locations Where No-Passing Line Is Used	Portion With No-Passing Line	Total
mph	Feet	Feet	Feet	Feet	Feet
70	700	2,600	700-1,500	2,000	3,000
60	525	2,200	525-1,200	1,600	2,400
50	400	1,500	400- 900	1,200	1,800
40	300	1,000	300- 600	800	1,200

Safety in War and Post-War Projects

by SIDNEY J. WILLIAMS

FOR the past two years, highway policy has been the child of military need. The results are only too familiar to you: new construction cut almost to zero; planning, design, maintenance, policing, driver licensing and public educational work sadly hampered by personnel losses if not by reduced budgets.

These handicaps, incurred through the highest patriotic motives, resulted in serious delays, especially in the early days of the war. Many workers spent four hours or more each day driving to and from work and truck movements were equally delayed because of congestion and accidents due to inadequate facilities and control. Engineers and police struggled manfully to overcome these obstacles and keep essential war traffic moving, and in most places their efforts have been successful.

We Need to Do Better

On the whole, wartime traffic problems have been met with patriotic energy and with characteristic American ingenuity. We might have done much worse—but we need to do much better. The degree of "conservation" which we have achieved would still seem reckless extravagance to our allies. We tolerate unnecessary travel, increasing violation of the wartime speed limit, cheating on gasoline coupons; we kill or injure over a thousand *workers* every day. It is our duty as responsible public officials and leaders of public opinion, to arouse the public to a much more realistic understanding that the war is not yet won, that vehicles and gasoline and lives must not be wasted, that not all the sacrifices shall be made at Tarawa or Cassino.

Immediate Postwar Problems

Immediate postwar problems will include the subnormal condition of vehicles and tires, which will require months if not years to remedy completely; the subnormal condition of highways due to inadequate maintenance and almost no reconstruction; the decline in the quantity and often the quality of police enforcement, driver licensing and other preventive activities—all added to the quick increase in miles driven which will surely follow the lifting or relaxing of gas rationing. Speeds undoubtedly will increase even before the 35 mile limit ends; and this may be serious indeed, in view of the deteriorated condition of both vehicles and highways and the depletion of police forces. About the only bright spot on the immediate horizon is a possible decrease in drinking, and in driving or walking under the influence, which we have, I hope correctly, ascribed to war tension.

The long term prospect, as you well know, embraces a great increase in the number of motor vehicles, and many probable changes in the traffic pattern —decentralization of metropolitan areas, and the shifting of industrial, commercial, educational and recreational establishments, all of which can be met only by the most farsighted planning and prompt action on the part of all concerned.

How are we to meet these many and varied problems? By hasty palliatives, born of desperation after the

emergency has become acute? Heaven forbid! The wise planning and handling of traffic, as of many other elements in our joint life, presents as great a challenge as this nation has ever faced—more complex in many ways than the challenge of survival in global war—a challenge which is at the same time the greatest opportunity we have ever had, to utilize properly the tremendous productive energies that will be suddenly released.

If we handle traffic wisely, we shall handle it safely; for safety is not a thing in itself, to be added or withheld at will; it is a by-product of efficiency, of doing the thing the right way.

The MacDonald Report

The MacDonald Report on Interregional Highways, and particularly the design standards in Appendix V, are in my opinion the greatest single contribution ever made to highway safety. Here is a program to thrill the imagination of every one of us who looks forward to a better highway transportation system — indeed, of everyone who looks forward to a better America. It fulfills the famous admonition of Daniel Burnham to "make no little plans." Its final consummation runs into billions of dollars, yet practical considerations have not been overlooked; the end is to be reached by many easy steps. That is the essence of all great planning—not to do everything at once, but to do nothing that will have to be undone, to have everything that is done fit into the final picture.

I fervently pray that no sectional, political, or other jealousies will prevent universal acceptance of this as the master plan for American highways, and that the design standards will be accepted as the ideal, and will be followed as closely as is humanly possible, on all new construction and improvement of present highways outside as well as within the inter-regional system. It is far more effective, far cheaper in the long run to build safety into a highway (or into a factory or a home) than to continue, generation after generation, the painful process of education and enforcement to avoid hazards which should never have been created.

Hundred Mile an Hour Highways

The MacDonald standards are based on safe travel at speeds of 50 to 75 miles an hour depending on terrain. I hope this will, once for all, lay the ghost of "hundred mile an hour highways". We can build—at a price—hundred mile an hour highways and hundred mile an hour cars, but where are we going to find hundred mile an hour drivers? Not enough of them, in our generation at least, to keep the cars and the highways busy.

This matter of speed, on all kinds of highways, is one of our big postwar traffic problems. Speed is not something to be abolished, like grade crossings, or punished, like driving under the influence. Speed is an attribute of motion; speed, properly controlled, is a great asset. It can and must be properly controlled, through design, through intelligent enforcement, and most of all through education of and self control by the driver himself. The facts about speed in relation to accidents are much better understood than they were ten years ago but our knowledge is still incomplete.

Re-establish Traffic Departments

Another thing we must all strive for is the prompt re-establishment of official traffic departments from which so many of the most active and most promising younger men have been loaned to the military services. I refer

not only to highway but to police, driver licensing and public educational forces and I say "loaned" because it is greatly to be hoped that these men will be among the first to be returned to civilian duties. These departments should be quickly restored to, and in many cases above their highest prewar efficiency, and this means adequate budgets. To this end you will have the strong support of all the organized safety and traffic forces of the country.

But let me emphasize that the aim is a high standard of efficiency, not merely a large number of employees. We surely have learned that every phase of traffic is a highly professional job, requiring intelligence, devotion, and special training. A vital postwar need is to expand the training programs, both pre-service and in-service, which were just getting a good start before Pearl Harbor.

Better Accident Records

Intelligent designing, maintenance, signing, policing and all the other traffic functions are impossible without accident records. An accident is not merely a personal misfortune, it is a symptom of something wrong in the highway or in the traffic on that highway. We need much better accident records, better analysis, and better use of them, than even the best of today or of yesterday.

We need general records, combining the experience of many states and cities, to sharpen our knowledge of what is really essential in design and to strengthen our arguments for those features which we already believe to be essential. We know, without statistics, that a divided highway without grade crossings is safer—but how much safer? It is no credit to any of us that such data are not already available.

The cost of collecting them is an infinitesimal fraction of the money spent on construction.

Overhaul Traffic Laws

Many traffic laws need overhauling. Probably the Uniform Vehicle Code needs overhauling; due to wartime stresses, it has not been revised since 1936. Then, we all need to get together on uniform rules of the road, universal effective driver licensing, uniform signs and signals, universal use of chemical tests for liquor influence, pedestrian protection and control.

In fact, we need to get together, "period". Through the Highway Traffic Advisory Committees and in many other ways, we have gotten together during the war much better than ever before. With our country in great peril, we have been ashamed to quarrel. That is one war condition that should not cease with the armistice. The MacDonald program, all the other things I have mentioned, cannot possibly be accomplished without unselfish, generous, energetic cooperation among all the departments dealing with traffic; among the federal, state and local governments; among the officials and the many private agencies which can support and complement your efforts.

Postwar Traffic Safety Planning Committee

As one contribution toward this great task, the National Safety Council recently set up a Postwar Traffic Safety Planning Committee in its Street and Highway Traffic Section. Many of the things I have said this morning will be amplified in the report which this committee will soon release. I should like in closing to quote from the preamble to this report:

"A high traffic death toll cannot and will not be tolerated in America after the war. Socially, we cannot countenance the unnecessary carnage —economically, we cannot afford the

attendant financial loss. We must, then, prepare now to meet the complex traffic problems which will surely arise.

"The Committee is aware that the solution of many of these problems lies mainly within the statutory responsibilities of federal, state and local officials. As in the past, it is the governmental agency which actually does the job and it is deserving of the highest degree of support.

"We earnestly believe that upon two single factors rests the ultimate success of any official program. First, an informed public opinion; second, a broader degree of cooperation and coordination among all of the agencies involved—governmental or otherwise. To this end the National Safety Council extends its fullest cooperation and offers all its facilities."

Sydney Williams (Mem.) is General Manager of the National Safety Council. This is taken from an address given before the Mississippi Valley Conference of State Highway Officials in Chicago on January 29, 1944.

An Example of Decongesting War Traffic

by J. E. JOHNSTON

THE traffic engineer under present war conditions frequently finds himself faced with rather urgent and critical traffic problems, and due to the time element and the shortage of manpower and materials he has been unable to make the corrections which he would have made during normal times. To solve these problems the traffic engineer has had to employ temporary corrective measures using the tools which he has available.

Some of these tools are the traffic engineer's old standbys — signs and markings. These "lowly" implements of rather questionable control efficiency have, during the emergency, been elevated to a place of importance on the traffic engineer's workbench. They have risen in esteem just as that old spare tire we hung onto has become one of our most cherished possessions. Even as the useful life in the old tire has taken on a new meaning to most of us, so also, signs and markings are proving some of their hidden values for present and postwar continuation for their usage.

The disrespect for signs and markings which has grown in the minds of some traffic engineers is due largely to the lack of factual information as to their effectiveness. The Nebraska Traffic Engineering Department has attempted, when time would permit, to make "before and after" studies of various signing and marking projects to either verify or discount the alleged value of these traffic controls.

One such project revealed such unquestionable results that a report of this project is offered with the thought that others might find the same signing and marking program applicable to similar problems elsewhere.

The Problem

This particular problem was one of congestion and accident hazard at a point where a one-way approach road and one leg of U. S. Highway No. 73 & 75 forms a "Y" intersection. The traffic consisted of war workers. The approach road is a two lane, 22 foot, one-way concrete pavement, approaching at an angle of approximately 15 degrees. The highway is also a 22

foot, one-way concrete pavement with straight alinement through the intersection. At this point there was an attempt to merge four lanes of traffic into two lanes—no opposing traffic involved. Approximately 1500 vehicles were involved in this merging movement during a 60 minute period, 60% of the vehicles using the highway and 40% using the approach road. The critical period occurred twice daily.

Field Studies

Speeds were unduly slow due to congestion, averaging 30 miles per hour. Minimum headways of 2.26 seconds per vehicle per lane were observed following the point of merging. A lane use study during the peak periods revealed the following distribution of traffic: on the approach road—36% of the vehicles used the right lane and 64% used the left lane; on the highway 67% of the vehicles used the right lane and 33% used the left lane. The tendency for the greater percentage of drivers to use the left and right lanes in the respective roadways suggested the remedy.

The Solution

The need was seen to be the orderly single lane operation, with vehicles on the approach road keeping to the left and vehicles on the highway keeping to the right. The use of no-passing zones was considered but the idea was abandoned because of the need to move vehicles into the left lane on the approach. The treatment applied comprised the blocking off or voiding by the use of yellow, white and black paint those sections of slab necessary to encourage drivers to drive through the intersection properly. The marking was started far enough in advance of the merging point to permit the adjustment. Signs were placed reading "Use Right Lane Through Intersection" (on the main route) and "Use Left Lane Through Intersection" (on the side road) at points on the road ahead of the paint treatment.

Results

The treatment was applied in two stages and "after" studies were made following each stage. The first stage consisted of the paint treatment only. This treatment made a definite improvement in the lane use operation. The left lane of the approach road had an increased use from 64% to 87% and the right lane of the highway increased in use from 67% to 88%.

The second stage which entailed the sign placement also proved effective. The left lane of the approach road had an increased use from 87% to 88% and the right lane of the highway had an increased use from 88% to 95%. This meant that during the peak hour of operation in the approach road and highway respectively only 12% and 5% of vehicles were using the voided areas after application of signs and markings as compared with 36% and 33% before treatment. Average vehicle speeds were also increased two to three miles per hour.

The improvement which has been effected at this location is not only evident from the survey data but is obvious during observation. The study definitely proves the value of paint lines and signs in regulating certain types of traffic situations. Whereas before, this junction was a continual source of congestion, irritation and potential accidents, it now operates smoothly, orderly and safely.

The author is Traffic Engineer of the Nebraska State Highway Department, a Junior Member of the Institute of Traffic Engineers.

Obsolescence in Central City Areas

by ROBERT H. ARMSTRONG

THE problem of obsolescence, or decayed and blighted neighborhoods, is undoubtedly one of the most serious that is confronting many municipalities today. More often than not, obsolescence is the opposite side of that movement which we are wont to call "decentralization", for when either a residential or business population moves away from a neighborhood or district, they inevitably leave behind them old and ramshackle buildings, blight and decay. We must also recognize neighborhood obsolescence to perhaps be even more important than building obsolescence. Of course buildings wear out and become outmoded, but it is my observation that their rate of decline is at times slow indeed when compared with that of the neighborhood. In fact, it may be stated in general that buildings have a life of two to three times that of the neighborhoods which surround them.

Neighborhood Obsolescence

The causes of neighborhood obsolescence are many, and they might be unimportant except that it is only in the causes that we can find the solution of this problem. It is also in the causes, I believe, that we can find the remedies; for today's "good areas" constitute tomorrow's blight.

Obsolescence primarily occurs when any given area is no longer able to serve the needs, requirements, and desires of either the business or the residential population within it. Because a neighborhood is more often than not a rather homogeneous unit, and moreover because new buildings in depleted sections cannot be constructed on the basis of one or two units at a time (for blight has its own Gresham's Law—the bad has a tendency to destroy the good) both business and people take the easiest course, and move somewhere else. The "else" being a newer section where both the accommodations and services are either better or cheaper.

Residential Neighborhoods

Let us consider for a moment residential neighborhoods first. People generally desire clean, decent and habitable homes. Children need space in which to play and grow—and not main thoroughfares in front of their homes which are just two jumps ahead of being racetracks. People—all people—want and need adequate playgrounds and parks and decent schools. The breadwinner of a family can only acquire these by moving to the periphery or suburb of a city—at the cost of from an hour to two hours and a half of traveling to and from work daily—he moves—and figures the time element as being worth in value the benefits he and his family will derive.

While the suburban builder has been damned in the past, nevertheless he has made a better life possible—without government subsidies—for great sections of our urban population. He naturally has built with an eye to "mass appeal"—and with due regard to costs, for land costs on the outskirts are invariably cheaper than land costs in central sections. Moreover, the element of investment risk has been less.

Further, private builders couldn't rebuild an obsolete area if they tried. Experience has proven that while a single building or two may be erected in a new or comparatively stable section, it is suicide to make such an attempt in one that is blighted or on the down grade. In these areas several—or even dozens—of square blocks must be rebuilt at one time—and there is a job of civic and social planning to be done as well. Also, land costs—even in the worst of slum areas—are not often, but always and invariably too high to allow any margin of profit.

Another principal reason for blight is found when residential and business uses are comingled, or adjoin each other too closely. In this case, residential property becomes unsuited for its original purpose, and business is not able to absorb the space and land in excess of its needs.

Slums

In bad times slums tend to depreciate—of course—but we are learning that in good times they depreciate faster than they do in bad. When the poorer classes obtain better incomes they get out of the slums just as fast as they can. When the boom passes, they don't move back to where they came from—they stay where they are and pay less rent. People seldom move as a mass into forlorn houses. They double up—triple up—quadruple up, instead.

Industrial Obsolescence

Obsolete industrial areas occur when the structures and the services provided by these areas can no longer meet the demands and furnish the needs of business. Buildings constructed 50 or 100 years ago cannot fit into today's pattern of industry or transportation. For instance, modern business and manufacturing require large areas of space—large areas of land. But land in the center of our cities is held at a premium. Today the economic height of a modern factory is at most two stories. Belt conveyor lines and modern methods of manufacturing have rendered obsolete thousands upon thousands of old 5 and 6-story loft and factory buildings, and to some extent the comparatively modern 10 to 20-story loft structure erected upon plots 100′ x 200′ in size are also obsolete. Efficient manufacturing units require at least 100,000 square feet on one floor, and a great deal is lost in efficiency and profit if manufacturing businesses have to locate in one story above another. Resultantly, manufacturing today requires greater land areas, and unless cities can provide this space, they seem doomed to contain greater and greater numbers of vacant buildings in their central areas, which means more and more blight.

Traffic Congestion

Another cause of obsolescence lies in the crowded thoroughfares which exist in the majority of large cities. Manufacturing, as well as wholesaling and retailing, needs transportation facilities by which there can be an efficient shipping of goods. Unfortunately, our narrow city streets were constructed for the horse and buggy days, and if it takes an hour for a truck to move a few miles, say, from docks or railroads to the point where business is transacted, the cost of such freight movement is going to be measured very analytically by the cost accounting department of any firm that is geared to conduct business at a profit. Cities in the future must plan to give business a break, as well as the motorists.

Business is done on a cost basis, and if it can operate at the periphery or in locations where the tax load is less—if taxes are a considerable item—

business will sooner or later find a new locale for its operations. Modern transportation has brought the hinterland into competition with central land, and unless this fact is recognized—and recognized soon—I fear that the trends of the past will continue.

The most accurate gauge we have of any community's well being is the activity and productivity of its business. If that is lost, the base which supports the population and the city government indeed becomes most insecure.

Control of the total area of urbanization has become, for our American cities, a basic essential. European cities have prevented new growth on their outskirts unless there was a demonstrable need. Perhaps it is time that we investigated this possibility. Blighted areas are, if you will, the penalty of maturity, but no longer can we reach out and continue to spread.

Some Remedies

While our current situation with respect to blighted and obsolete areas is indeed serious, there are some things that can be done.

Most municipal costs today are for services to people and not to property, and until our cities have the courage to break away from the property tax, they shall continue to have trouble with their budgets.

One straw in the wind as to the way we may soon reclaim some part of our obsolete areas comes from the redevelopment laws which have been enacted during the past few years by the New York legislature. Without doubt, these laws are imperfect, but they provide a way for rebuilding to be done. Fundamentally, financial institutions can be much safer in owning real estate than they can by merely lending upon it. For too long the majority of real estate in our cities has been under-managed. In the good times, owners inevitably take all the income that there is, and in the bad times they drop their properties to the mortgagees. And 99 out of every 100 buildings that are foreclosed require a great deal of money spent on them in order to place them in decent condition, because they have been "milked" dry. Institutional ownership, therefore, might be safer!

Another way in which obsolete areas can be improved may lie through construction on the part of private redevelopment companies which have been granted in certain districts the power of condemnation. Of course, we must improve our methods of finance before this becomes possible.

Public housing can be located within the present blighted areas. Public housing will undoubtedly be necessary for a number of those in the lowest income group. Usually these ventures are of large size covering several square blocks at a time. Simple, decent and clean homes and apartments can be given to people in the centers of cities as well as in the outskirts.

There is no one cure-all or panacea for obsolete areas. In many sections nature will have to take its own course, and in these nothing much can be done until central land values decline to a point where a builder will find it more economic to construct within the city than without. In some cases, this may mean municipal receivership, but this is merely a method of paying for the mistakes of the past, reorganizing, and going ahead on a firmer foundation than we have had before. Our cities have grown sort of like Topsy, without rhyme or reason, and there is no doubt but that a complete reorganization can only be found, in many instances, through city planning.

It is high time that we reoriented

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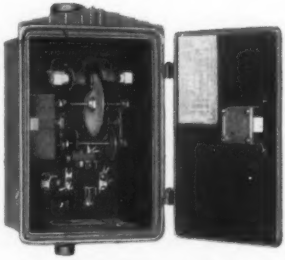

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ourselves in the matter of city planning. The economic structure of our older cities must be maintained. We cannot permit our cities to destroy themselves. The price the entire nation will have to pay will be too high. Our days of haphazard growth are over. It must now be recognized that to preserve and recreate our central city areas may be a greater and more praiseworthy achievement than to create new cities and new suburbs.

A digest of a paper presented before the Civic Planning & Traffic Board, Providence, R. I., by Robert H. Armstrong, Real Estate Appraiser and Analyst, N. Y. C., Feb., 1944.

NEW SPOTTING WHEEL DEVICE FOR MAKING PAVEMENT LINES

The Maintenance Department of California Division of Highways has developed a device to reduce the high cost of spotting pavement preparatory to traffic striping.

The device consists of a trailer wheel and paint container attached to the rear of a truck with two pointers mounted by adjustable clamps on the truck's front bumper. The spotting wheel is attached to the rear bumper while the paint container is affixed to the tail gate. Paint drips by gravity onto the wheel which runs along the pavement, leaving a trail of white paint.

The clamps and wheel attachment are adjustable so as to fit any model truck or passenger car.

With the marking wheel in front, each movement of the front wheels of the truck is indicated by the marking wheel. By placing the wheel in the rear, the painted line does not reflect the slight movements of the front wheels.

This also eliminates the necessity of having a workman ride on the fender to regulate the flow of paint. The rear attachment permits a workman to ride in the body of the truck as the paint control valve and wheel lifting lever can be operated from this position.

In installing the device, it is first necessary to line up the truck and driver's eyes along a painted line. The two pointers are then placed and carefully adjusted to this line. The marking wheel is then installed on the rear bumper directly over the center of the line.

In using the wheel device, guide points consisting of white painted dots (3 inches in diameter) are placed at approximately 100-foot intervals.

Under the old hand method, in a normal working day approximately six miles of highway could be so spotted. The new marking device enables the spotting of approximately fifty miles per day with a crew of two men as compared with the old method of six miles with three men, and further decreases the hazard to the men carrying on this operation.

A condensation of an article by Martin A. O'Brien, Maintenance Assistant, which appeared in the January-February 1944 issue of "California Highways and Public Works" Magazine.

ITE NEWS AND PERSONALS

Who's Who Among I.T.E. Members

This is the fourth of a series presenting outstanding members of the Institute of Traffic Engineers. Mr. Dearborn is an affiliate member, this grade of membership being conferred on persons who are contributing substantially to the Traffic Engineering profession through outstanding achievements in a related field.

NED HARLAN DEARBORN, Affiliate member of the Institute of Traffic Engineers, Executive Vice-President of the National Safety Council, was born in Conneautville, Pennsylvania, June 2, 1893. He is a graduate of State Normal School, Edinboro, Pennsylvania, 1912, and of Columbia University from which he received his B.S., M.A., and Ph.D. degrees. He received his Doctor's degree in 1925. Since the age of about seventeen his professional experience has been in the field of education. From 1910 to 1920 he was respectively teacher, principal, and superintendent of public schools in Erie and Crawford Counties, Pennsylvania. From 1921 to 1923 he was Director of Training at the State Normal School, Oswego, New York. From 1923 to 1925 he served as Assistant to the Director of the Division of Educational Research of the Commonwealth Fund, New York. He was Director of the Division of Teachers Training of the State Education Department of New York from 1925 to 1929. From 1929 to 1934 he was Professor of Education and Director of the Education Institute and the School of Education at New York University. He was Dean of the Division of General Education at New York University from 1934 to 1942.

Safety Education Work

In this latter capacity he was responsible for the development in 1938 of the Center for Safety Education which operated under his direction until 1942 at New York University. This Center, a department of the General Education Division of the University, trains persons for engaging in professional safety work. As Vice-President of the National Safety Council for two years, he was in direct charge of the formulation of policies and programs relating to accident pre-

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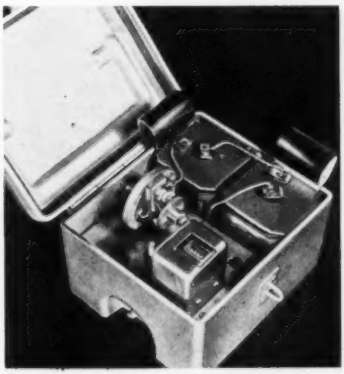

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vention among the school population of the country. He also served as Chairman of the special Finance Support Committee which was responsible for developing the policies of financing that resulted in the formation of the War Production Fund to Conserve Manpower. In addition to his connections with the Safety Center at New York University and the National Safety Council, he is a member of the Board of Directors of the American Museum of Safety, New York, and of the Award Committee of that organization for selecting the winning essays on industrial and other forms of safety for 1942.

In 1942 he became Executive Vice-President of the National Safety Council, devoting full time to the executive direction of the Council's work.

Affiliations

Mr. Dearborn is a member of numerous organizations and other groups functioning in the public interest. He is a member of the Board of Directors of the American Association for Adult Education and has been one of the nation's leading figures in the adult education movement for the past eight years. He is a fellow of the American Association for Educational Research, a member of the National Educational Association, the American Association of School Administrators, the New York State Teachers Association, the New York State Council of City School Superintendents, the Municipal Arts Committee of New York and a member of the Board of Directors of the Progressive Educational Association.

Mr. Dearborn is the author of a number of books and papers on the subject of education, including *Introduction to Teaching*, 1925; *Once in a Lifetime*, 1935; and *Social Studies in Teachers' Colleges*, (with Earl Rugg) 1938.

PERSONALS

LESLIE WILLIAMS (Assoc.), Editor of TRAFFIC ENGINEERING, formerly Director of the Providence Civic Planning Traffic Board, is now with the American Transit Association in New York City. Les will be engaged primarily in work of a city traffic planning nature, with the emphasis on postwar planning.

HERMAN HOOSE (Jun.) has resigned as Mishawaka, Indiana, City Traffic Engineer, to take a position with the U. S. Engineers Office in Oak Ridge, Tennessee. Mr. Hoose reports that he is engaged in work of a traffic engineering nature.

EARL REEDER (Mem.), chief traffic engineer for the National Safety Council, has recently been appointed as secretary of the important new Committee on Postwar Traffic Safety Planning, appointed by the National Safety Council's Street and Highway Traffic Section.

HAROLD HAMMOND (Mem.), President of the Institute; CAPT. J. E. P. DARRELL (Assoc.), Transportation Corps, Detroit, on leave Minnesota Highway Dept.; MAXWELL HALSEY (Mem.), Executive Secretary, Michigan State Safety Commission; GRANT MICKLE, (Mem.), Traffic Engineer Automotive Safety Foundation; PROFESSOR ROGER MORRISON (Mem.), University of Michigan; CHARLES UPHAM (Affil.), Engineer-Director, ARBA; and MAJOR R. S. HOLMES (Jun.), on leave from the National Conservation Bureau, participated in the Michigan Highway Safety Conference in Grand Rapids, February 28th and 29th.

JOSEPH FEUCHTER (Mem.), on leave as St. Louis Traffic Engineer, was recently promoted to Captain in

the U. S. Army, and is associated with MAJOR R. S. HOLMES who is in charge of the Traffic Division of the MP school at Fort Custer, Michigan.

GRAHAM COLE (Mem.), Chairman of the Institute of Traffic Engineers Traffic Engineering Training Committee has been holding a series of meetings of the Committee in New Haven, New York, and Chicago.

WILLIAM MCCONOCHIE (Mem.), Traffic Engineer, Chicago Surface Lines; and HENRY EVANS (Assoc.), National Conservation Bureau; members of the Institute Annual and Mid-Year Meetings Committee met in Chicago last month to discuss with THOMAS SEBURN (Mem.), Kansas City Traffic Engineer and Vice-President of the Institute, I.T.E. participation in the Central States Safety Congress. This is to be held June 6th, 7th, and 8th, in Kansas City, Missouri, and the Institute has been asked to designate a representative to serve on the Congress Advisory Committee.

MAJOR FRANK KREML (Affil.), Army Transportation Corps, on leave as Director, Northwestern University Traffic Safety Institute, 25 pounds lighter than when he left for the European front in 1942, is back in the United States. Major Kreml had been assigned to the Fifth Army in Italy. He reports that MAJOR GEORGE BARTON (Mem.) took over his duties when he (Kreml) returned to the United States.

LT. LAWRENCE E. HENDRICKSON (Jun.), on leave from the Minnesota Department of Highways, is reported to be a prisoner of the Japs. His address is: U. S. Army, Prisoner of War, Interned by Japanese, Philippine Prison Camp No. 1, Through New York.

LT. WORTHAM DIBBLE (Assoc.), on leave, South Carolina Highway Department, writes, "Regularly I read the Traffic Engineering Magazine but it is usually about four months old. September is my last issue (letter dated January 1, 1944). Some day I hope to be able to write a fairly decent letter but news here is all censorable, so ——."

LT. ROBERT GRUNOW (Assoc), Associate Highway Engineer Economist on leave from the Public Roads Administration, writes from overseas, "Have been over here about 9 months. Sure will be glad to get back to the good old U.S.A. where the people drive on the right side of the street. It was with much pleasure that I received the new membership roster—some of the fellows' addresses have been lost to me for some time." Lt. Grunow's address is: Co. "B"—398th Eng. Regt., A.P.O. 511, New York Postmaster.

Michigan I.T.E. Section Meetings

The second meeting of the Michigan I.T.E. Section was held at a luncheon on February 28th in Grand Rapids, Michigan, in conjunction with the Annual University of Michigan Highway Conference.

At a prior organizational meeting held in Detroit, the sixteen attending members elected as Permanent Chairman, Joseph Wehmeyer (Mem.), Wayne County Road Commissioners Safety Engineer. Lloyd Reid (Mem.), Detroit Traffic Engineer, was elected Vice-Chairman; and Maxwell Halsey (Mem.), Executive Secretary, Michigan State Safety Commission, was elected Secretary-Treasurer. It was decided to hold future meetings on the first Friday of each month unless circumstances indicate different. The place of meeting will be alternated between Detroit, Lansing, Flint, etc.

New York I.T.E. Section

February 24th witnessed the regular monthly meeting of the New York Section, presided over by Ted Matson (Mem.), Director, Yale Bureau for Street Traffic Research. Tom Willier (Mem.), former Houston Traffic Engineer, and now with the Yale Bureau, was welcomed as a new member of the local Section. Guests included Carroll Mealey, National Safety Council, and Donald Opstad, Minnesota Mining & Manufacturing Co. A lively discussion was held during which the need for more adequate regular collection of urban traffic data was pointed out.

John Gibala (Mem.) was selected to head the March meeting which is scheduled for Wednesday evening, March 29th. This coincides with the annual Greater New York Safety Council Convention, which is being held March 28, 29, and 30th, hence it is expected that many out-of-town I.T.E. members will be present at the Section meeting at the Hotel Holley at 7:00 P.M.

Washington, D. C. I.T.E. Section

Fifteen members attended the February meeting of the Washington, D. C. Section at the Fairfax Hotel. John Nolen, Jr., Director of Planning for The National Capital Park and Planning Commission, talked informally on current city planning problems, followed by a lively and stimulating discussion.

Indiana Forms Traffic Engineers Assn.

Twenty-two engineers from various Indiana cities and the State Highway Commission of Indiana form the Charter members of a newly-formed Indiana Traffic Engineers Association. Ernest H. Miller (Jun.), South Bend City Traffic Engineer, has been elected President. Other Institute members holding offices in the Association are as follows: Second Vice-President, Herman J. Hoose (Jun.), U. S. Engineers; and Secretary-Treasurer, Lloyd Bowman (Assoc.), Director of Traffic, Indiana State Highway Commission.

LOOKING AHEAD

STANDARDS AND SPECIFICATIONS COMMITTEE meeting is tentatively set for May 3rd at Chicago's Sherman Hotel in conjunction with the Mid-West Safety Conference. Martin Bruening (Assoc.) is chairman of this Committee

TRAFFIC ENGINEERING SESSION, Annual Greater New York Safety Convention, Wednesday afternoon, 2:00 P.M., March 29th. Subject "Current and Postwar Speeds". This Session jointly sponsored by I.T.E.

Meeting of the INSTITUTE OF TRAFFIC ENGINEERS BOARD OF DIRECTION, 10:00 A.M., March 30th, New York City.

TWENTY-THIRD ANNUAL MASSACHUSETTS SAFETY CONFERENCE, April 3-4. Of especial interest to traffic engineers is the Highway Safety Session, April 14th, 2:15 P.M.

TWENTY-SECOND ANNUAL MID-WEST SAFETY CONFERENCE, May 2, 3, and 4th, Sherman Hotel, Chicago. Traffic Engineering Sessions, May 3rd, jointly sponsored by I.T.E.

Traffic Engineering Session

The Institute of Traffic Engineers is cooperating with the Greater New York Safety Council in holding a traffic engineering session on the subject of "Current and Postwar Speeds" on Wednesday afternoon at 2:00 P.M., March 29th, at the Hotel Pennsyl-

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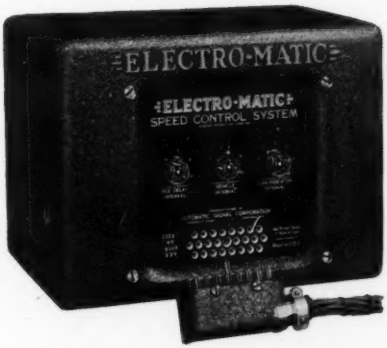
SPEED CONTROL SYSTEM



Model S-20 Speed Controller

ELECTRO-MATIC SPEED CONTROL SYSTEMS limit vehicle speeds on curves, underpasses, bridges, approaches to towns, school zones and the like. The elements of the system are an Electro-Matic Speed Controller, Vehicle Detector, Traffic Signal, and sometimes a C-A-R Indicator Signal. Vehicles approaching the controlled zone at allowable speeds proceed without stopping, on a "Go" indication. The speeding motorist is confronted by a red signal at the stop line if his speed is not reduced to a safe limit. In addition provision is made for signalling the approach of a vehicle from the opposite direction where conditions make it desirable.

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vania, at the Annual Greater New York Safety Council Convention.

Wilbur Smith (Mem.), Assistant to the Director, Yale Bureau for Street Traffic Research, will act as Chairman of this session.

E. H. Holmes (Assoc.), Public Roads Administration, is to deliver the principal address on "Current and Postwar Speeds".

A panel, composed of the following men, will discuss the subject in a question and answer session:

Virden A. Rittgers (Mem.), Traffic Manager, Rockland Coaches, Inc.
T. T. Wiley (Mem.), Associate Traffic Engineer, Detroit Traffic Engineering Bureau.
James G. Hayden (Assoc.), Associated Transport, Inc.
Edwin F. Koester (Assoc.), Wilmington City Traffic Engineer.
Neal G. Adiar, Managing Editor, *Motor Magazine*.
Robert E. Raleigh, Acting Director, Safety Division, International Association of Chiefs of Police.
Spencer Miller, Jr., New Jersey State Highway Commissioner.

Joint Committee On Speed

WILBUR SMITH (Mem.), Assistant to the Director, Yale Bureau for Street Traffic Research, has been designated to represent the Institute of Traffic Engineers as a member of the Joint Committee on Speed in Relation to Accidents, which held its initial meeting on March 11th at Chicago.

The Committee was formed recently by joint action of the American Association of State Highway Officials, the International Association of Chiefs of Police and the National Safety Council. Other national agencies, besides the Institute of Traffic Engineers, invited to designate representatives on this Committee include the American Trucking Association, Public Roads Administration, National Association of Motor Bus Operators, Society of Automotive Engineers and American Automobile Association and the National Conservation Bureau.

Objectives of the Committee will include development of sound recommendations to be made when wartime speed regulations terminate. Staff service will be furnished by the National Safety Council.

SALES JOB OPEN

The Scotchlite division of the Minnesota Mining and Manufacturing Company is seeking a young qualified engineer immediately for sales engineering work, headquarters to be in New York City. This is a rapidly expanding division and offers an unexcelled opportunity. Contacts and engineering work will be primarily in the field of traffic and highway engineering. An automobile will be furnished for traveling. Interested persons should send experience record and salary requirements to the Institute of Traffic Engineers Headquarters, 60 John Street, New York 7, N. Y.

EDITOR ANNOUNCES STAFF CHANGES

Leslie Williams, Editor of TRAFFIC ENGINEERING announces that Henry Evans, Traffic Engineer, National Conservation Bureau, who has previously been News Editor will function as Co-Editor of the magazine with added responsibilities in addition to handling the News and Personals section.

Charles Prisk, Associate Highway Engineer, Public Roads Administration, has been appointed Technical Editor. As part of the effort to "dress up" and improve the magazine, more and better technical articles will be sought and included in the magazine; this activity to be under Mr. Prisk's able direction.

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